

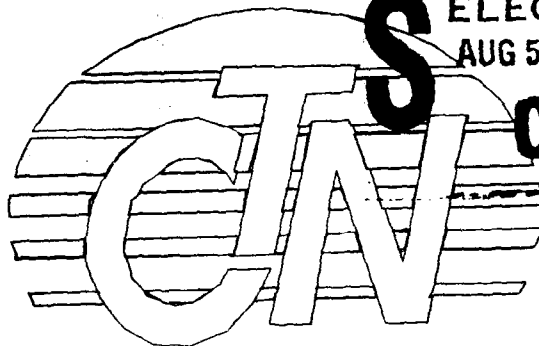
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# CALS Test Network Handbook

March 1993

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## CALS TEST NETWORK



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## **CTN Handbook March 1993**

### **Preface**

This Computer-aided Acquisition and Logistic Support (CALS) Test Network (CTN) Handbook will have periodic updates. These will occur as the technology of CALS standards and testing grows and matures.

CALS Standards and Specifications require three levels of testing. The testing includes: a) Standards Validation Testing; b) Conformance Testing and; c) User Application Testing. The management of CALS Standards Validation Testing and User Application Testing has been assigned to the CALS Test Network. Conformance Testing will be assigned to other agencies.

This handbook is the responsibility of the CALS Test Network, Air Force CALS Program Office, Headquarters Air Force Materiel Command (HQ AFMC/ENC). Any recommendations for change or comments about the content should be sent to:

**Major Ed Preston  
Director  
CALS Test Network  
HQ AFMC/ENC  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
Phone: (513) 257-3085  
FAX: (513) 257-5881**

## CTN Handbook March 1993

### INTRODUCTION

#### ABOUT THIS HANDBOOK

The purpose of this handbook is twofold. First, it provides an introduction to the CTN and identifies the managers and testing analysts. Second, it lists CTN reference material such as testing platforms used by CTN, testing tools, CTN reference test packet descriptions, and how to receive some of these materials. The writing style and format of the document will be concise.

#### DISCLAIMER

CTN uses vendor hardware and software products in its testing platforms and during demonstrations. CTN has written software only in cases where a commercial equivalent could not be found. Products developed by CTN and vendors are listed in the handbook. The use of a particular vendor product does not imply "CALS compatibility, compliance, or certification," or an endorsement or recommendation by CTN. The intent of listing the products and tools is to provide participants with a mechanism to develop their own utilities and applications.

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*CALS TEST NETWORK*

# General Information

## **CTN Handbook March 1993**

### **General Information**

*The CTN is a confederation of government and industry organizations who have agreed to demonstrate and test the Computer-aided Acquisition and Logistic Support standards.*

The CALS Test Network was created by the Office of the Secretary of Defense (OSD) to demonstrate the CALS standards and test their effectiveness. These standards define the interchange of digital technical data. They have become increasingly important and are required for contractors, subcontractors, and vendors desiring to do business within the Defense industry.

#### **Goal**

The goal of the CTN is to test, evaluate and demonstrate the interchange and functional use of digital technical information using CALS standards. The testing is being accomplished within these initial target capabilities:

- \* Technical Publications (text and graphics)
- \* Product Data (engineering drawings and CAD files)
- \* Support Data (on-line Logistics Support Analysis data)
- \* Data Protection and Security
- \* Data Configuration Management
- \* Data Acceptance Procedures
- \* CALS for Small Business

#### **Standards and Specifications**

The CALS Standards and Specifications currently being tested and demonstrated are:

- MIL-STD-1840B Automated Interchange of Technical Information
- MIL-D-28000A Digital Representation for Communication of  
Product Data: IGES Application Subsets
- MIL-M-28001B Markup Requirements and Generic Style  
Specification for Electronic Printed Output  
and Exchange of Text (SGML)
- MIL-R-28002B Raster Graphics Representation in Binary  
Format. Requirements for
- MIL-D-28003A Digital Representation for Communication of  
Illustration Data: CGM Application Profile

## **CTN Handbook March 1993**

### **General Information**

- MIL-M-87268      Manuals, Interactive Electronic Technical: General Content, Style, Format and User Interaction Requirements
- MIL-D-87269      Data Base, Revisable: Interactive Electronic Technical Manuals, for the Support of
- MIL-Q-87270      Quality Assurance Program: Interactive Electronic Technical Manuals and Associated Technical Information; Requirements for
- MIL-STD-CITIS    Contractor Integrated Technical Information Service (CITIS), Functional Requirements for

### **Approach**

CTN is a confederation of participants from industry, government, academia and from international partners. These participants form a network of digital data capabilities linked physically or logically. As data is transferred from one participant node to another, the CTN tests it against the CALS standards. The CTN performs a thorough analysis and publishes a report describing the transfer, the quality of data, the utility of the data after the transfer, and the overall performance of the standards. These reports are made available to CTN members and to the public. They point out progress in the functional use of the CALS standards. They also are used to influence future modifications and additions to the standards.

### **Benefits**

Some benefits of the CTN to CALS are: (1) demonstration of the capabilities, operation, and functional use of the CALS standards over the complete range of user applications, (2) evaluation of the capability and effectiveness of the CALS standards, (3) identification of needed improvements to the standards, (4) identification of requirements for new digital data standards, (5) development of Acceptance Testing procedures for files delivered in fulfillment of contracts, (6) development of guidance on how to use the CALS standards, (7) testing the usability of the CALS standards at the corporate level in the DoD infrastructure, and (8) elimination of duplicate testing by the DoD components.



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*CALS TEST NETWORK*

# Membership Information

## **CTN Handbook March 1993**

### **Who May Join?**

CTN membership is open to industry and government organizations, both national and international. Government participants included the DoD, the Services within DoD, other government departments or agencies, and government research and development laboratories. Industry participants include defense contractors, subcontractors, and vendors of weapon systems or of weapon system related hardware, software, and research data, and non-defense contractors.

### **Who Are The Current Members?**

There are presently 460 organizations (government, industry, academia, and international) that are members of the CTN including all of the Services, and most major defense industry contractors.

### **What Are The Benefits Of Membership?**

Members benefit by being kept aware of CALS utilization and testing. They get a head start on using CALS standards by participating in transfer tests of actual CALS-compliant data. Preliminary reports of transfer tests are available to members on the CTN bulletin board. As individual tests are performed, all members benefit from the lessons learned. Members also become familiar with current transfer capabilities among the entire CTN community.

### **What Is The Cost To Join?**

Membership is free. There is no cost to join nor is there an annual fee to pay.

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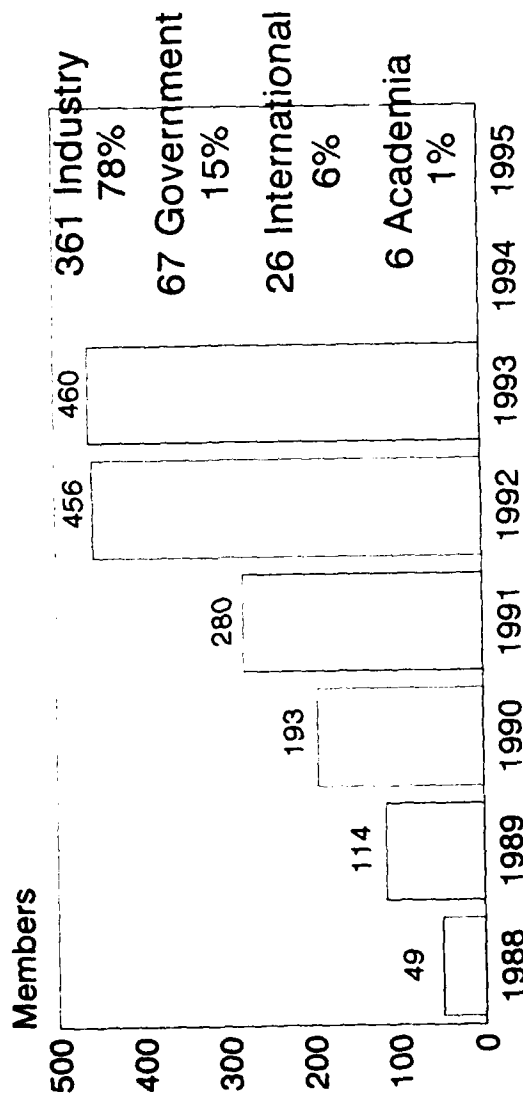
**How Do You Join?**

An organization or facility becomes a CTN member by filling out both the CTN Membership Application and signing the Memorandum of Agreement (MOA) which are at the back of this handbook. These documents describe the interests of the member, the capabilities that they may bring to the network, and the method of interaction expected. Mail the completed Application and the signed Memorandum of Agreement to:

**Major Ed Preston  
Director  
CALS Test Network  
HQ AFMC/ENCS  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
Telephone: (513) 257-3085  
FAX: (513) 257-5881**



# CALS Test Network Membership



176 New Members in 1992

As Of 5 March 1993



*CALS TEST NETWORK*

**Membership List**

**460 Members**

**5 March 1993**

# CTN Members Mar 93

ABI Enterprises Greenbelt MD	AGFA Compugraphics Wilmington MA
AEL Defense Corp Dayton OH	AIL Systems, Inc. Deer Park NY
AF AFMC ASC/SCNO WPAFB OH	AMP Inc Harrisburg PA
AF AFMC ASC WPAFB OH	ARC Professional Services Grp Hanover MD
AF AFMC CSRC WPAFB OH	AT&T Federal Systems Greensboro NC
AF AFMC CSRC/COESAC Palestine TX	AT&T EasyLink Inc Bridgeton MO
AF AFMC EDCARS Program WPAFB OH	AVTEC Systems Inc Fairfax VA
AF AFMC Electronic Systems Center Bedford MA	AZTEK Irvine CA
AF AFMC/ENC WPAFB OH	Accent Systems Corp Arlington TX
AF AFMC Ogden ALC Hill AFB UT	Access Corp Cincinnati OH
AF AFMC Oklahoma ALC Tinker AFB OK	Advanced Sciences Inc Albuquerque NM
AF AFMC Rome Development Center Rome NY	Advanced Technology Inc Reston VA
AF AFMC Sacramento ALC McClellan AFB CA	Aerojet Electronic Sys. Div. Azusa CA
AF AFMC San Antonio ALC Kelly AFB TX	Aerospace Tech. Group Inc Columbus OH
AF AFMC Warner-Robins ALC Robins AFB GA	Air Force Department of Defence Canberra, Australia
AF AFMC/WL-AARF WPAFB OH	Airborne Express/ABX Air Inc Wilmington OH
AF SM-ALC F-22 McClellan AFB CA	Aircraft Technical Publishers Brisbane CA
AF HQ USAF/LE-I Washington DC	Albert Consulting Group Los Gatos CA
ADRA Systems Inc Lowell MA	Albuquerque Operations Office Albuquerque NM

### CTN Members Mar 93

Alcoa	Army PM JCALS
Alcoa Center PA	Ft Monmouth NJ
Alliant Techsystems	Aspen Systems Corp
Hopkins MN	Rockville MD
Allied Signal Aerospace Company	Aspen Technical Publications
Kansas City MO	Union City CA
Allied Signal Aerospace Company	Assurance Manufacturing
Teterboro NJ	Coon Rapids MN
Alpharel	Auto-Trol Technology
Camarillo CA	Southfield MI
Analysis & Technology, Incorp.	Auto-trol Technology
Chesapeake VA	Denver CO
Apple Computer	Autodesk Inc
Reston VA	Sausalito CA
Applied Technology Center	Auxco
League City TX	Silver Spring MD
Apunix Computer Services	Avalanche Development Company
San Diego CA	Boulder CO
Aquidneck Data Corp	BOW Industries Inc
Middletown RI	Chantilly VA
ArborText Inc	Baham Corp
Ann Arbor MI	Columbia MD
Architect of the Capital	Battelle
Washington D.C.	Dayton OH
Army, AMC, AMCCOM, ARDEC	Battelle Human Affairs Res.Ctr.
Dover NJ	Seattle WA
Army AMCCOM	Bechtel Inc
Rock Island IL	San Francisco CA
Army Foreign Science & Tech Center	Bill Loye & Associates
Charlottesville VA	St. Paul MN
Army Information Systems	Boeing - TMIS Project
Redstone Arsenal AL	Reston VA
Army Material Command	Boeing Computer Services
Alexandria VA	Wichita KS
Army Material Command/S,I & M	Boeing Computer Services
St Louis MO	Philadelphia PA
Army Munitions & Chemical Cmd	Boeing Computer Services
Rock Island IL	Vienna VA



### CTN Members Mar 93

Boeing Computer Services Reston VA	CE-Engineering Automation Alameda CA
Boeing Computer Services Seattle WA	CENTECH Beavercreek OH
Boeing Computer Services Renton WA	CERC Morgantown WV
Boeing Computer Services Richland WA	CIMAGE Corp Ann Arbor MI
Boeing Military Aircraft Div. Wichita KS	CIMLINC Inc Troy MI
Booz-Allen & Hamilton Inc Arlington VA	Caley Enterprises Ripley WV
Boston Software Works Inc Boston MA	Carberry Technology Townsend MA
Brigham Young University Provo UT	Casde Corp Arlington VA
British Aerospace Military Lancashire, England	Casterline Computer Consulting Fort Collins CO
British Aerospace Public Stevenage, England	Chipcom Corp Southborough MA
Brodan Information Services Inc Fremont CA	Chrysler Tech Airborne Sys Dayton OH
C-TAD Systems Inc Ann Arbor MI	Cincom Systems Inc Cincinnati OH
CAD/CAM Engineering Systems Eagan MN	Cisigraph Corp Pittsburgh PA
CADKEY Inc. Windsor CT	Cleveland Advanced Manufacturing Cleveland OH
CAE Electronics Ltd. St. Laurent, Quebec	Computer Associates San Diego CA
CALS Connectivity Center Dallas TX	Computer Sciences Corp Shrewsbury NJ
CALS Shared Resource Center Scranton PA	Computer Sciences Corp Moorestown NJ
CAS Inc Huntsville AL	Computer Sciences Corp Horsham PA
CBIS Federal Inc Fairfax VA	Computer Sciences Corp Houston TX

# CTN Members Mar 93

Computer Sciences Corp Hampton VA	Digital Equipment Corp Melbourne FL
Computer Technology Management Chicago IL	Digital Equipment Corp Chelmsford MA
Concept Develop Technologies Inc Burlington MA	Digital Equipment Corp Landover MD
Concurrent Technologies Corp\CSRC Johnstown PA	Digital Equipment Corp Nashua NH
Control Data Corp St. Paul MN	DET Norske Veritas Industri AS Norway
Cubic Defense Systems San Diego CA	Douglas Aircraft Company Long Beach CA
Cummins Engine Company Columbus IN	Draper Laboratory Cambridge MA
DCMO Rochester, DoD Office Rochester, Kent, UK	EDS Unigraphics Maryland Hts MO
Data Conversion Laboratory Fresh Meadows NY	EG&G Dynatrend Inc Cambridge MA
Data Development Inc Stuart FL	Eastman Kodak Rochester NY
Datalogics Irvine CA	Eaton Corp Deer Park NY
Datalogics Chicago IL	Electronic Book Technologies Providence RI
Datalogics Bethpage NY	Electronic Commerce Executive Forum Washington, D.C.
Defense Logistics Agency Alexandria VA	Electronic Data Systems Indianapolis IN
Defense Printing Service Bremerton WA	Electronic Data Systems Bethesda MD
Department of National Defence Ottawa, Ontario	Electronic Data Systems Bloomfield Hills MI
Department of National Defense Hull, Quebec	Electronic Data Systems Troy MI
Department of Transportation Cambridge MA	Electronic Data Systems Herndon VA
Digit Software Inc Silver Spring MD	Electronic Data Systems Oak Creek WI

# CTN Members Mar 93

Electronics & Space Corp	General Dynamics Electric Boat
St. Louis MO	Groton CT
Enginetics Corp	General Dynamics Electronics
Huber Heights OH	Columbus OH
Exoterica Corp	General Electric Aircraft Engines
Ottawa, Ontario	Cincinnati OH
FMC	General Electric Automated System
Santa Clara CA	Huntsville AL
FMC	General Electric Corp Engineering
Chicago IL	Bridgeport CT
FileNet	Georgia Institute of Technology
Costa Mesa CA	Alpharetta GA
Flight Refueling Ltd	Gillette Company
Dorset, England	Boston MA
Foreign Broadcast Information Ser.	Giordano Associates Inc
Frederick MD	Long Branch NJ
Formtek Inc	Government Printing Office
Pittsburg PA	Washington DC
Frame Technology	Graphics Communications Assoc.
San Jose CA	Arlington VA
GSC Associates Inc	Grif S.A.
Redondo Beach CA	St. Quentin, France
GTE Government Systems Corp	Grumman Data Systems
Needham Heights MA	Bethpage NY
GTX Corp	Grumman Data Systems
Phoenix AZ	N. Charleston SC
Gateway Conversion Technologies	HQDA SFIS-FAV-F
Morrisville NC	Washington DC
General Atomics	Harris Corp
San Diego CA	Melbourne FL
General Dynamics	Harris Corp
Rancho Cucamonga CA	Dayton OH
General Dynamics	Henderson Software
Ft. Worth TX	Boulder CO
General Dynamics Adv. Manuf.	Hercules Corp
Pomona CA	Clearwater FL
General Dynamics Data Systems	Hewlett Packard
San Diego CA	Pleasanton CA

# CTN Members Mar 93

Hewlett Packard	I-NET Inc
San Jose CA	Fairborn OH
Hewlett Packard	IBM
Fort Collins CO	Los Angeles CA
Hewlett Packard	IBM
Baltimore MD	San Jose CA
Hewlett Packard	IBM
Boeblingen, Germany WE	Boulder CO
Hilton Systems Inc	IBM
Mt. Arlington NJ	Orlando FL
Honeywell	IBM
Littleton CO	Bethesda MD
Honeywell Air Transport System Div.	IBM
Phoenix AZ	Rockville MD
Honeywell Military Avionics Division	IBM
St. Louis Park MN	Owego NY
Honeywell Ordinance Division	IBM
Edina MN	Dayton OH
Honeywell Inc Military Avionics	IBM
St. Louis Park MN	Manassa VA
Honeywell Inc	ICM Inc
St. Louis Park MN	Phoenix AZ
Horizons Technology Inc	IDEAL Scanner Division Inc
Billerica MA	Rockville MD
Hughes Aircraft	IGES Data Analysis Corp
Fullerton CA	Berkeley IL
Hughes Aircraft Company	IOMEGA
Long Beach CA	Atlanta GA
Hughes Aircraft Company	IRPL/ENSTA
Canoga Park CA	Palaiseau, France
Hughes Aircraft/Tucson Support Sys.	ITT-A/CD
Tucson AZ	Fort Wayne IN
Hughes Ground Systems Group	Image Memory Systems Inc
Fullerton CA	Dayton OH
Hughes Missile Systems Co	Image Processing Systems
Pomona CA	Markahm, Ont Canada
Hughes Training Inc	Image Systems Technology Inc
Arlington TX	Troy NY

### CTN Members Mar 93

InContext	Island Graphics
Toronto, Ontario	San Rafael CA
Industrial Technology Institute	Israeli Air Force
Ann Arbor MI	WPAFB OH
Industry West Electronics	J.D. Kiser & Associates
Orem UT	College Park MD
InfoDesign Corp	Johns Hopkins University
Toronto, Ontario	Laurel MD
Information Spectrum Inc	Joint Committee on Printing
Dayton OH	Washington DC
Ingalls Shibuilding Inc	JWK International Corp
Pascagoula MS	San Diego CA
Input Inc	Kennedy Space Center
Vienna VA	Kennedy SC FL
Inset Systems Inc	Knowledge Base International
Brookfield CT	Houston TX
InterCap Graphics Systems	Kruse Industries Inc
Annapolis MD	Dowington PA
Interconsult Inc	Llamas Plastics Inc
Cambridge MA	Sycmar CA
Intergraph	LLNL MITI Project/TIS Program
Huntsville AL	Livermore CA
Intergraph	LLNL CIM
Littleton CO	Livermore CA
Interleaf	LLNL Mechanical Engineering
Santa Clara CA	Livermore CA
Interleaf	LLNL NERSC
Norwalk CT	Livermore CA
Interleaf	LLNL Technical Info. Dept.
Cambridge MA	Livermore CA
Interlinear Technology	LTV Aerospace and Defense Co.
Alameda CA	Dallas TX
Interlinear Technology	Litton Computer Services
Cambridge MA	Agoura Hills CA
International Computer & Telecom	Litton/ITEK Optical Systems
Rockville MD	Lexington MA
International Technegroup Inc	Lockheed
Milford OH	Austin TX

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Lockheed Aeronautical Systems  
Burbank CA  
Lockheed Aeronautical Systems  
Kennesaw GA  
Lockheed Aeronautical Systems  
Marietta GA  
Lockheed California  
Burbank CA  
Lockheed Integrated Solutions  
Fairfax VA  
Lockheed Missiles & Space  
Sunnyvale CA  
Lockheed Sanders Inc  
Nashua NH  
Logicon - Ultrasystems  
El Segundo CA  
Logistic Services Int Inc  
Jacksonville FL  
Logistics Systems Architects  
Sacramento CA  
Loral Aerospace Company  
Newport Beach CA  
Loral Aerospace Company  
Palo Alto CA  
Loral Defense System - Akron  
Akron OH  
Loral Western Development Lab.  
San Jose CA  
Los Alamos National Laboratory  
Los Alamos NM  
MBB Deutsche Aerospace  
Munich, Germany  
MICAH Systems Inc  
Fairborn OH  
MITRE Corporation  
Bedford MA  
MITRE Corp  
McLean VA

Magnavox  
Torrance CA  
Magnavox  
Fort Wayne IN  
ManTech Services Company  
Alexandria VA  
Martin Marietta Astronautics  
Denver CO  
Martin Marietta Data Sys.  
Englewood CO  
Martin Marietta Energy Sys.  
Oak Ridge TN  
Martin Marietta Missile Sys.  
Orlando FL  
Maxima Corp  
Beavercreek OH  
Maxima Corporation  
Rockville MD  
McDonnell Douglas  
St. Louis MO  
McDonnell Douglas Missile Sys.  
Titusville FL  
McDonnell Douglas Space Sys.  
Huntington Beach CA  
McDonnell Douglas Telecom Dept.  
St. Louis MO  
Mentor Graphics Corp  
Beaverton OR  
Meridian Data Inc  
Reston VA  
Micro-Data, Ltd.  
Haifa, Israel  
Micrographic Technology Corp  
Mountain View CA  
Microsystems Engineering Corp  
Hoffman Estates IL  
Micro Systems Inc  
Ft Walton Beach FL

# CTN Members Mar 93

Minigraph	Navy Naval Sea Combat Systems
Broomall PA	Norfolk VA
Moda Magnetics Corp	Navy Naval Sea Systems Command
Farmingdale NY	Alexandria VA
Moore Quality Tooling Inc	Navy Naval Supply Systems Command
Centerville OH	Arlington VA
Motorola Inc GEG	Navy Naval Undersea Warfare Eng.
Scottsdale AZ	Keyport WA
MP Graphics Systems	Navy Naval Underwater Systems Ctr
Indianapolis IN	Newport RI
NIST	Navy Naval Weapons Center
Gaithersburg MD	China Lake CA
NMT Corp	Navy Naval Base
Madison WI	Philadelphia PA
National Library of Medicine	Neutronis Inc
Bethesda MD	Phoenix AZ
Navy NSWC Carderock David Taylor	Newport News Shipbuilding
Bethesda MD	Newport News VA
Navy NavSea Sys. Command	Northrop
Washington DC	Pico Rivera CA
Navy Naval Air Technical Ser.	Novell Inc
Washington DC	St. Louis MO
Navy Naval Aviation Depot	O'Neil & Associates Inc
San Diego CA	Dayton OH
Navy Naval Aviation Depot	OMI Logistics
Jacksonville FL	Fareham, Hampshire UK
Navy Naval Aviation Depot	OSD CALS Policy Office
Norfolk VA	Washington DC
Navy Naval Aviation Depot	Optigraphics
San Diego CA	Sebastopol CA
Navy Naval Ocean Systems Ctr	Oracle Federal Group
San Diego CA	Bethesda MD
Navy Naval Ordinance Station	Oracle Multimedia
Indian Head MD	Redwood Shores CA
Navy Naval Pubs & Printing Svcs	Oster & Associates Inc
Washington DC	Bel Air MD
Navy Naval Research Laboratory	OutSource Inc
Washington DC	Los Angeles CA

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Owl International Inc	Rockwell International Space Trans.
Bellevue WA	Downey CA
PRC, Incorporated	Rockwell Space Operations Company
Reston VA	Houston TX
Pratt & Whitney	Rolls Royce (Canada) Limitee
East Hartford CT	Lachine, Quebec
Pratt & Whitney	Rolls Royce PLC
Middletown CT	Filton Bristol, England
Pratt & Whitney	Rosetta Technologies
West Palm Beach FL	San Jose CA
Publishing Technology Management	Rosetta Technologies
Arlington MA	Portland OR
REDCON	Royal Australian Air Force
Bountiful UT	Sydney, Australia
RLT Associates	SAIC
Knoxville TN	McLean VA
Raytheon Company--Publication Dept.	SEMCO
Bedford MA	Carlsbad CA
Raytheon Service Company	SGAO
Burlington MA	Paris, France
Resource Strategies Inc	SSC Laboratory
San Diego CA	Dallas TX
Rockwell International	STS Information Systems Inc
Canoga Park CA	Alexandria VA
Rockwell International	SYSCON Corporation
El Segundo CA	San Diego CA
Rockwell International	SYSCON Corporation
Seal Beach CA	Washington DC
Rockwell International	Sandia National Laboratories
Los Angeles CA	Albuquerque NM
Rockwell International	Scan-Graphics Inc
Anaheim CA	Broomal PA
Rockwell International	Schlumberger Technologies
Downey CA	Billerica MA
Rockwell International	Scientific Software Corp
Cedar Rapids IA	Maywood IL
Rockwell International	Scilab Inc
Dallas TX	Niskayuna NY



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Shaw Industries Inc	Systems Engineering Design Lab.
Franklin PA	Blacksburg VA
Sikorsky Aircraft	Systems Integration Management Act
Stratford CT	St Louis MO
Simmonds Precision	TAAS-HANCAL
Vergennes VT	Ramat-Hasharom Israel
Smiths Industries	TAMSCO
Grand Rapids MI	Beltsville MD
SofTech, Inc.	TAMSCO
Fairborn OH	Dayton OH
SoftQuad Inc	TASC
Toronto, Ontario	Fairborn OH
Software Publishing Corp	TRW
Dublin OH	Redondo Beach CA
Software Publishing Corp	TRW
Santa Clara CA	Norton AFB CA
South Carolina Research Authority	TRW - ACA
North Charleston SC	Anaheim Hills CA
Southwest Research Institute	TRW Federal Systems
San Antonio TX	Fairfax VA
St. Paul Software	TRW SEDD
St. Paul MN	Carson CA
Structural Dynamics Research Corp	Technology Management Corp
Milford OH	San Diego CA
Sun Micro Systems Federal Inc	Teledyne Power Systems
Vienna VA	Mobile AL
Sun Microsystems Federal	Teleprint Corp
Mountain View CA	Cambridge MA
Sundstrand Aerospace	Texas Instruments
Rockford IL	Plano TX
Supply Tech Inc	Texas Instruments
Ann Arbor MI	Dallas TX
Swedish Defence Materiel Admin.	Textron - Lycoming
Stockholm Sweden	Stratford CT
Swedish Inst.of Prod. Eng. Res.	Textron Defense Systems
Goteborg, Sweden	Wilmington MA
Sydney Communications Ltd.	Tiburon Systems Inc
Aldershot, Australia	San Jose CA

# CTN Members Mar 93

Titan Applications Group  
Vienna VA  
Tracor Inc  
Arlington VA  
UNISYS  
Huntsville AL  
UNISYS  
Great Neck NY  
UNISYS  
WPAFB OH  
UNISYS  
Paoli PA  
UNISYS  
McLean VA  
UNISYS CAD/CAM  
Boulder CO  
UNISYS Corp  
Reston VA  
UNISYS Defense Group  
Great Neck NY  
US Lynx Inc  
New York NY  
USC  
Marina del Rey CA  
United States Video Corp  
Vienna VA  
University of California  
Santa Barbara CA  
University of Cambridge  
Cambridge, England  
VSE Corp  
Alexandria VA  
Vere Smith Inc  
Parkersburg WV  
Veritec Inc  
Chatsworth CA  
Viking Systems Inc  
American Folk UT

Visual Engineering  
San Jose CA  
Vitro Corp  
Silver Spring MD  
Volt Group  
Anaheim CA  
Volt Group  
Chantilly VA  
WESCO  
Walnut Creek CA  
WRDC-MTI  
Dayton OH  
Wang Laboratories  
Lowell MA  
Wang Laboratories, FSU  
Bethesda MD  
Williams International  
Walled Lake MI  
Winchester Data Products, Inc.  
Raleigh NC  
Wing Corp  
Johnstown PA  
Wiz Worx  
Chelmsford MA  
Woodside Summitt Group Inc  
Mountain View CA  
Wordperfect Corp  
Orem, UT  
Xerox Corp  
San Diego CA  
Xerox Corp  
Pasadena CA  
Xerox Corp  
Sunnyvale CA  
Xerox Corp  
El Segundo CA  
Xerox Corp  
McLean VA

**CTN Members Mar 93**

Xerox Imaging Systems  
Peabody MA  
Yard Software Systems  
Bel Air MD  
Young Minds Inc  
Redlands CA  
Zenographics Inc  
Encinitas CA



*CALS TEST NETWORK*

# Test Beds

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**CTN Handbook March 1993**

**CALS Test Network Test Bed Points of Contact**

**Army Test Bed**

Howard Chyatt  
Army PM CALS  
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Ft Monmouth NJ 07703-5000  
908/544-2180  
DSN 995-2180  
FAX 908/532-0403

**Air Force Test Bed**

Gary Lammers  
HQ AFMC/ENCS  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
513/257-3085 DSN 787-3085  
FAX 513/257-5882

**CTNO Test Bed**

Don Vickers/Carolyn Wimple  
Lawrence Livermore National Laboratory  
P O Box 808 L-542  
7000 East Street  
Livermore CA 94550  
510/422-4231  
FAX 510/294-5054

**Navy Test Bed**

Joe Garner  
Code 1226 Bldg 17 Rm 100  
NSWC Carderock Division  
David Taylor Model Basin  
Bethesda MD 20084  
301/227-1533  
DSN 287-1533  
FAX 301/227-3343

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**CTN Test Beds**

**Army Test Bed**

**Contact: Howard Chyatt**

**Telephone: 908/544-2180**

**E-Mail: cal001@monmouth-emh3.army.mil**

**Hardware:**

DEC VAX 4000, running VMS 5.4 with 6.4MB main memory, (2) RA90 1GB hard disk, Ethernet board, TU81 9-track magnetic tape drive (6250 BPI), TK70 Cartridge

Computervision Workstation, running UNIX bsd 4.2 with 4MB RAM, 19" (1152X900) color monitor, 300MB hard disk, Ethernet, 9-track (1600 BPI)

Sun 3/160 running SUN UNIX 4.1.1 with 8MB RAM, 19" (1152X900) color monitor, 741MB hard disk, 60MB 1/4" tape drive, Ethernet, floating point processor

Sun 386i Model 250 running Sun UNIX 4.0.1 with 16MB RAM, 19" (1152X900) color monitor, 500MB hard disk, 60MB 1/4" tape drive, math coprocessor, floating point accelerator, Ethernet, high resolution printer

IBM PS/2 Model 50Z, running PC-DOS with 2MB RAM, 40MB hard disk, 3.5" floppy, high resolution RGB monitor, MS-DOS co-processor, MODEM

Apple MacIntosh II, running MAC O/S with 2MB RAM, 40MB hard disk, 3.5" floppy, high resolution RGB monitor, Ethernet, MS-DOS co-processor

Zenith Z-248 PC running MS-DOS (4 units) with 1.5MB RAM, 20MB hard disk, 5.25" floppy, EGA monitor, Ethernet, math co-processor

Calcomp Electrostatic plotter

Optimem 2400 Optical disk drive with 12" WORM platter

Gateway 2000 486/33C PC running MS-DOS 5.0 with 8MB RAM, 20MB Hard Disk, 5.25 and 3.5 inch floppies, super VGA Monitor, Ethernet, math co-processor

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### **CTN Test Beds**

#### **Army Test Bed (Cont'd)**

Gateway 2000 386/33C PC running SCO UNIX V with 8MB RAM, 320MB hard disk, 5.25 and 3.5 inch floppies, super VGA monitor, Ethernet, math co-processor.

Sun SPARCstation 4/370 running Sun/UNIX O/S

Apple MacIntosh II, running MAC O/S with 2MB RAM, 40MB hard disk, 3.5" floppy, hi res RGB monitor, MS-DOS coprocessor, MODEM

Apple MacIntosh II C/X running MAC O/S (nine systems) with 4-8MB RAM, 8-100MB hard disk, Radius or Raster OPS displays, MAC II Ethernet, 3.5" floppy drives

Dell System 325 running MS-DOS (4 systems) with 4-8MB RAM, 100-150MB hard disk, 40MB streaming tape backup, 3.5" and 5.25" floppies, 3Com Etherlink II

Kurzweil K5100 scanning system

Kodak 6800 optical disk drive with 14" WORM platter

QMS 820 Printlink Printer

#### **Software:**

**VMS:** CTN Tools, Oracle DBMS

**UNIX:** Interleaf TPS and CALS Package; Computervision  
Mechanical CAD, Electrical CAD, Drafting packages;  
IGES Translator

**MS-DOS:** Datalogic Writerstation, MetaView (CGM interpreter),  
Drawperfect, Image-in, MetaDesign, IGES-to-CGM  
conversion utility, CTN Tools

**MAC:** Author Editor, Fasttag, MetaDesign, Checkmark



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### **CTN Test Beds**

#### **Air Force Test Bed**

Contact: Gary Lammers

Telephone: 513/257-3085

E-Mail: glammers@mmdis01.hq.af.mil

#### **Hardware:**

Sun Microsystems 4/690 SPARCserver, running Sun UNIX V4.2.1 with 62 megabytes of RAM, 2-1.3 Gigabyte disk drives, CDROM.

Sun Microsystems 2/280 Server, running Sun UNIX V4.0.3 with 16 megabytes of RAM, 2-700 megabyte disk drives, 2-1600/6250 BPI 9-track tape drives

Sun Microsystems SPARCstation 2, running Sun UNIX V4.2.1 with 32 megabytes of RAM, 20 inch high resolution color monitor, 2-435 megabyte disk drives, CDROM, 90 megabyte IOMEGA Bernoulli drive, 120 megabyte 1/4 streaming tape

SUN Microsystems 3/60 Work Station, running Sun Unix 4.0.3 with 16 megabytes of RAM, 2-130 megabyte disk drives, 20 inch medium resolution color Monitor, 1/4 inch streaming tape drive

Cheetah Micro-computer, 80486 25MHz processor, running DRDOS 6.0, 8 MBytes of RAM, 2-130, 326 megabyte SCSI hard drive, 4 megabytes SCSI caching controller, 90 megabyte IOMEGA Bernoulli drive, 1.44 megabyte 3.5 inch and 1.2 megabyte 5.25 inch floppy drives, QualStar 1600/6250 BPI 9-track tape drive, 16 inch SVGA monitor, Houston Instruments DMP-29 plotter, Western Graphic plotter, Microsoft mouse.

UNISYS Micro-computer, 80386 20 MHZ processor with 80387 co-processor, running MIDOS 5.0, 16 megabytes of RAM, 20 inch SVGA monitor, 330 megabyte hard drive, 1.44 megabyte and 1.2 megabyte floppy drive, Microsoft mouse, CDROM, WORM CDROM

HP IIIsi network printer with 4 megabytes of RAM, Postscript capability

Sun Microsystems laser printer with 2 megabytes of RAM, Postscript

Novell Netware 3.11 LAN software with NFS capabilities

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**CTN Test Beds**

**Air Force Test Bed (Cont'd)**

**Software:**

UNIX: Agfa CAPS CALS, Rosetta Technologies Prepare/Preview, IDA IGESview, IDA Parser/ Verifier, CTN TAPETOOL, CTN VALIDG4, CTN calstb.350, ITI IGESWorks, ATC's CGMView, AutoCAD R11, ArborText, Intergraph CAD

DOS: AutoCad R11, CADKEY V4.06, IDA Parser/Verifier, CTN TAPETOOL, CTN VALIDG4, Rosetta Technologies Prepare/Preview, Inset Systems HIJAAK V2.02, USLynx CALS Solution, Exoterica XGMLNormalizer, Datalogics ParserStation, Xerox Ventura Publisher, Software Publishing Harvard Graphics 3.0, Enable 4.5, Micro Engineering CheckMark, ATC MetaCheck and Metaview

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**CTN Test Beds**

**CTNO Test Bed**

**Contact: Dr Don Vickers**

**Telephone: 510/422-4231**

**E-Mail: vickers@lance.tis.llnl.gov**

**Hardware:**

Sun 3/280 data server with 16MB RAM, 900MB disk storage, 9-track tape drive (6250/1600 BPI)

Sun 3/60 Diskless workstations with 4MB RAM, Televideo Alphanumeric terminals, Performance Technologies SCSI board, LMSI Optical disk drive with 12" platter, MODEM

DEC MicroVax-II running VMS Version 5.0 with 8MB RAM, 100MB disk storage

MicroVax running VMS 4.7 with 8MB RAM, 150MB hard disk, Pertek 9-track tape drive (800, 1600, 3200, 6250 BPI), TK-50 Cartridge Drive, Tektronix 4207 graphics terminal, postscript printer

Sun 3/60, running Sun/UNIX ver 4.2 (rel 3.5)

Sun 4 SPARCstation IPC running Sun/UNIX Ver 4.2 (rel 4.1.1)

Personal Computer with 80386/80387 processors running MS-DOS 5.0 and Windows 3.1, 2MB RAM, 40MB hard disk, 5.25" 1.2MB, 3.5" 1.44 MB and 3.5 720 KB floppy drives, VGA monitor, LaserJet Plus printer

MacIntosh II

ColorGraphics 100 Plus Model 65 color plotter

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**CTN Test Beds**

**CTNO Test Bed (Cont'd)**

**Software:**

VMS: C and FORTRAN compilers, McAIR CGM Toolkit, CCITT  
Analysis from Xerox, CTN Tape Tool, CTN ValidG4

UNIX: ATC GRAF-PAK GKS, ATC GrafKIT, PSC GPLOT, ATC CGMView,  
  
McAIR CGM Toolkit, CTN ValidGCM, VibrantView (CGM Viewer),  
Carberry Technology CADLeaf Plus, CALSTB.350, TouchUP  
CALSTB.350, Touchup

DOS: Software Publishing Harvard Graphics (for DOS and for WindowsP).00  
Micrografx Charisma, Computer Suport Arts & Letters Graphics Editor,  
Microsoft Powerpoint, CorelDRAW, VCGM, Access Softek Venue (CGM  
Viewer)

MAC: GraphPorter, MetaPICT

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### **CTN Test Beds**

#### **Navy Test Bed**

**Contact: Joe Garner**

**Telephone: 301/227-1533**

**E-Mail: [garner@oasys.dt.navy.mil](mailto:garner@oasys.dt.navy.mil)**

#### **Hardware:**

Sun Microsystems 3/80 work station, running UNIX 4.03 with 12MB RAM, 327MB disk drive, 19" high res color monitor, and .25" streaming tape drive

Zenith 248 Micro-computer, running MS-DOS 3.2 with 12 MHZ 80286 CPU, 80287 math coprocessor, 1MB RAM, two disk drives 42MB total, and 14" color monitor

Unisys Micro-computer, running MS-DOS 4.01 with 20 MHZ 80386 CPU, 80387 math coprocessor, 8MB RAM, 340MB disk drive, 14" VGA monitor, 1.44MB and 1.2MB floppy disk drives

#### **Software:**

UNIX: NIST Parser (POSIX version), Sun View Utilities

MS-DOS: NIST Parser, Avalanche FastTAG, Datalogic Parser,  
Software Exoterica's XGML Normalizer

DEC VAXstation 3500, running VAX/VMS 5.1, TCP/IP  
DEC TK-70 Cartridge tape drive

Sun 3/160, running Unix 4.3bsd, TCP/IP  
Sun 9-track tape drive (800, 1600, 6250 BPI)  
Sun SPARC I WorkStation

Intergraph 340, running UNIX V version 3.0, TCP/IP

Micro-computers, running MS-DOS, TCP/IP

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**CTN Test Beds**

**Navy Test Bed (Cont'd)**

Computervision Personal Designer V-X  
9-track tape drive (1600, 6250 BPI)

MacIntosh, TCP/IP

Apollo 590T, running DOMAIN, UNIX, UNIX bsd 4.2, TCP/IP, Token Ring

**Software:**

VMS: DECwindows, BASEVIEW IGES display/Analyzer, IGES  
Data Analysis PARSER/VERIFIER, IGES Data Analysis IGES  
View, C, FORTRAN, CTN Tools

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CALS TEST NETWORK

# Test Tools



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**MIL-STD-1840A**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
TAPETOOL	CTN	Make, read analyze 1840A	VMS, UNIX MS-DOS	Free to CTN Members*
DUMP		Octal dump of tapes	VMS	VMS System Utility

**MIL-D-28000 IGES**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
IGES Parser Verifier	IGES Data Analysis	Analyze	VMS, UNIX	MIL-D-28000 Subset checking
IGES View	IGES Data Analysis	View/Plot	VMS, UNIX	for full IGES
PrePARE	Rosetta Technologies	Prepare for Viewing	UNIX	for full IGES
PreVIEW	Rosetta Technologies	View/Plot	UNIX	for full IGES

\* Distribution Limited to CTN Members. TAPETOOL may be obtained from the CTN Bulletin Board System (CTN BBS).

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**MIL-D-28000 IGES (Cont'd)**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
IGES Model Testing Sys (IMTES)	Glatz Associates	Analyze	VMS, MS-DOS	MIL-D-28000 Subset checking
MIL-D-28000 Class I Packet	CTN	Test Data and Instructions	Any IGES CAD System	Free to CTN Members
MIL-D-28000 Class II Packet	CTN Instructions	Test Data and CAD System	Any IGES Members	Free to CTN

**MIL-M-28001 SGML**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
INPAR	Datalogics	Parse/Verify	VMS, Apollo	C Source is available
MARK-IT v2.2.2	Oster & Assoc Inc	Parse/Verify/Link	VMS, UNIX MS-DOS	
XGML Normalizer	Software Exoterica	Parse/Verify	Mac II, MS-DOS	

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**MIL-R-28002 RASTER**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
VALIDG4	CTN	Verify Grp 4 compression	microVAX Appolo [in C]	Beta Version* available
calstb.350	CTN	Compress, Decompress Grp 4	Sun (in C)	Beta Version* available
CCITT Analysis	Xerox	Analyze G4	UNIX	Beta Version
TOUCHUP	NY Univ	Raster Editor	UNIX	Public Domain

\* Distribution Limited to CTN Members

**MIL-STD-28003 CGM**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
MetaCHECK/ MetaCALS	CGM Technology Software	List, Verify vs ISO 8632 & MIL-D-28003	DOS	
ValidCGM	CTN	List, Verify vs MIL-D-28003	UNIX	
MetaView	CGM Tech Software	Display, Plot (with GSS driver)	DOS	

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**MIL-D-28003 CGM (Cont'd)**

PRODUCT	SOURCE	FUNCTION	PLATFORM	COMMENTS
CGMView	Advanced Technology Center	Display, Plot	UNIX	
CGM ToolKit	McDonnell Douglas	List, Display, Plot	VMS	Pub Domain + from MDC
GPLOT	Pittsburgh Supercomp Center	List, Display, Plot, Convert CGM Format	VMS, UNIX	copyright PSC avail via download from GODOT.PSC.EDU+
ImPort	Zenographics	Display, Plot, CGM Trans to/from	DOS	
HiJaak	Inset Systems	Trans to/from CGM	DOS	
GraphPorter	GSC Assoc	Trans to CGM	MAC	
MetaPICT	GSC Assoc	Display, Trans from CGM	MAC	
VCGM	Robert M. Crawford	Display	DOS	Shareware
Venue	Access Softek	Display, plot	DOS with Windows	Not a commercial product
CADLeaf Viewer	Carberry Technology	Convert to CGM Display	UNIX Openlook & Motif	

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**MIL-D-28003 CGM (Cont'd)**

**The following graphics programs import/export CGM as noted.**

PRODUCT	SOURCE	FUNCTION	PLATFORM
Arts & Letters	Computer Support Grp	Presentation Graphics Imports/Exports/Displays CGMs	DOS
Charisma	Micrografix	Presentation Graphics Imports/Exports/Displays CGMs	DOS
CorelDraw	Corel Sys	Presentation Graphics Imports/Exports/Displays CGMs	DOS
FreeLance	Lotus Development	Presentation Graphics Imports/Exports/Displays CGMs	DOS
Harvard Graphics	Software Publishing	Presentation Graphics Imports/Exports/Displays CGMs	DOS
PowerPoint	MicroSoft	Presentation Graphics Imports/Exports/Displays CGMs	DOS
Systat/Sygraph	Systat Inc	Statistics Exports CGMs	DOS



*CALS TEST NETWORK*

# Testing Terms & Packets

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**Test Reference Packets**  
**Testing Terms and Definitions**

TEST SUITE:	Consists of a TEST PACKET and EVALUATION SOFTWARE.
EVALUATION SOFTWARE:	Includes automated tools used to evaluate programs, interpreters, etc. and digital data delivered in a particular standard format on a specified medium.
TEST PACKET:	Consists of REFERENCE DATA and a SCRIPT.
SCRIPT:	A set of instructions on how to use a test packet.
REFERENCE DATA:	Consists of hardcopy REFERENCE DRAWINGS and REFERENCE FILE.
REFERENCE FILE:	An electronic collection of information for testing a specific standard stored as a unit-record.
REFERENCE FILE SET:	A collection of REFERENCE FILES.
REFERENCE MATERIAL:	Is synonymous with REFERENCE DATA.
REFERENCE DRAWINGS:	May be electronic files or hardcopy. hardcopy drawings inside CTN TEST PACKETS are used for comparison, scanning, and example.
REFERENCE PACKET:	Is synonymous with TEST PACKET.

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Test Reference Packets**

**The CALS Test Network MIL-D-28000 Class I  
IGES Reference Illustration Packet Summary**

The IENTITY and the LGTABLE reference illustrations contained in this packet are used by the CALS Test Network analysts during user application testing of IGES data and by CTN members during self-tests of their digital data transfer abilities. IGES is the initial Graphics Exchange Specification used for interchanging graphical data between dissimilar computer aided design (CAD) and technical publication systems. Specifically, these reference illustrations demonstrate the use of IGES entities identified in the Technical Publication Subset, Class I, of the military specification, MIL-D-28000. In addition to demonstrating the use of this military specification and subset, these illustrations also allow the CTN to demonstrate the use of MIL-D-28000's parent document, MIL-STD-1840A. MIL-STD-1840A standardizes the delivery "envelope" used by organizations to exchange the digital forms of technical information.

**Content of the Reference Illustration Packet**

The CTN MIL-D-28000 Class I Reference Illustration Packet contains a set of reference material and the pieces of information needed to execute a test using a vendor's IGES processors. It contains:

1. Procedures to follow to conduct a pre-processor test; pre-processing is the translation from a graphics system to an IGES file.
2. A generation script (a set of instructions) to follow to create the IENTITY illustration on any graphic system.
3. Procedures to follow to conduct a post-processor test; post-processing is the translation from an IGES file to a graphics system.
4. The IGES files on a 9-track tape in MIL-STD-1840A format of both the IENTITY and LGTABLE reference illustrations to post-process into the graphics system.
5. Evaluation scripts (sets of questions) to complete after the IENTITY and LGTABLE illustrations have appeared on the screen after post-processing.
6. Plots of the IENTITY and LGTABLE illustrations.



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Test Reference Packets**

7. A paper printout of the IGES files for both the IENTITY and LGTABLE illustrations.
8. Entity listing and counts for both the IENTITY and LGTABLE illustrations.

**Content and Creation of the Reference Material**

**The IENTITY Illustration**

The IENTITY illustration is comprised of all the geometric, annotation, and structure IGES entities identified in the MIL-D-28000 Class I subset. The illustration is organized such that the entities reside individually by entity and form number within one box of a grid. This box is then labeled to show which entity it should contain. All entities are model mode entities, two-dimensional, and are contained on layer zero as MIL-D-28000 Class I requires. The drawing, containing a single view, is B-sized.

**The LGTABLE Illustration**

The LGTABLE graphic is an example of an actual technical publication illustration that completely complies to MIL-D-28000 Class I. It does not contain every entity identified in MIL-D-28000 Class I, however, it does contain a good sampling of the frequently used entities such as lines, circles, splines, text and fill. Again, all entities are model mode, two-dimensional and located on layer zero. The single view is contained on an A-sized drawing.

The LGTABLE illustration included in this packet is to be used during post-processor testing only. Although very useful as a sample illustration, pre-processor testing information was not deemed appropriate for LGTABLE because of the illustration's size and complexity.

**Development of the IGES Files**

The IENTITY and LGTABLE illustrations were drafted on a CAD system, then pre-processed into IGES files. Because the pre-processed IGES files did not completely conform to IGES Version 4.0, and MIL-D-28000 did not include all desired Class I entities, and included unwanted volunteer entities, the files were hand edited. During this hand editing, the criteria discussed in the "Guide to Developing IGES Test Cases" written by the IGES Test Case Subcommittee of the National IGES/PDES Organization was adhered to wherever possible. This hand editing produced IGES files that incorporate all MIL-D-28000 Class I entities and pass several IGES analyzers with no accountable errors. The analyzers referred to are the

### **CTN Handbook March 1993 Test Reference Packets**

IGES Model Testing System, the IGES Data Analysis Company Parser/Verify/View packages, and the Rosetta Technologies, Inc. PreVIEW software.

After the IGES files were thoroughly checked, MIL-STD-1840A headers were placed on the IGES files. Next, MIL-STD-1840A declaration files were written for each file. Lastly, all files were copied to a 9-track tape in MIL-STD-1840A-required formats.

#### **The Scripts**

This reference illustration packet contains two different sets of scripts. The generation script describes how to create the reference illustration on a graphics system during the pre-processor test. It is designed to be generic enough to allow illustration generation on any system. The evaluation scripts describe how to evaluate the graphical model that appears during a post-processor test. These scripts ask questions that try to address DoD's present requirements for a technical publication illustration digital transfer.

#### **The Procedures**

The CTN test procedures contained herein discuss running tests on the pre-processors and post-processors separately. These procedures follow one proposed by the National IGES/PDES Organization's Testing Subcommittee. Other procedures were derived from available hardware and software resources and past experience.

Deviations from and expansions to these procedures are encouraged as required by one's needs. An example of a deviation is to perform an end-to-end test with this reference data. These procedures do not address end-to-end testing because this type of testing is usually conducted with a user's actual illustration, not reference illustrations. An end-to-end test with this packet's reference data could easily be conducted by, first, following the pre-processor procedures and, second, sending that pre-processed IGES file through the post-processor procedures. As stated, deviations of this type are possible and should be used as experience and requirements dictate.

#### **Conclusion**

By following the procedures described in this CTN MIL-D-28000 Class I Reference Illustration Packet and by referring to the scripts, plots, and data lists also contained within, one can examine technical publication illustration digital transfers using IGES and MIL-D-28000. This

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packet does not validate a vendor's conformance to MIL-D-28000 Class I, but instead allows the CTN analysts and CTN members to demonstrate industry/ government's use of the MIL-D-28000 specification in accordance with the CALS initiatives.

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#### **CALS Test Network MIL-D-28000 Class II IGES Reference Drawing Packet Summary**

The NENTITY and L-BRACKET reference drawings described herein will be used by the CTN during structured end-to-end transfer testing of IGES data. IGES is the Initial Graphics Exchange Specification used for interchanging CAD data between dissimilar CAD Workstations. This packet will demonstrate the use of the IGES entities identified in the engineering drawing subset, Class II, of the military specification, MIL-D-28000. In addition to demonstrating the use of this military specification and subset, these drawings will also allow the CTN to demonstrate the use of MIL-D-28000's parent document, MIL-STD-1840A. MIL-STD-1840A is a CALS standard which standardizes the delivery "envelope" used by organizations exchanging digital forms of technical information.

It is important to note that many CAD systems presently support only part of the military specification/subset, MIL-D-28000 Class II, because of the large number of entities the subset identifies. This means that any system executing this reference material will not likely achieve 100 percent perfect results. There is no reason to be alarmed. The goal is to determine which entities are presently processed and to work toward the best transfers possible.

#### **Content of the Reference Drawing Packet**

The CTN MIL-D-28000 Class II Reference Drawing Packet contains a set of reference materials. This packet contains the pieces of information needed to execute a test using a CAD vendor's IGES processors. It contains:

1. Procedures to follow to conduct a pre-processor test; pre-processing is the translation from a CAD system to an IGES file.
2. Generation scripts (sets of instructions) to follow to create the NENTITY and L-BRACKET drawings on any CAD system.
3. Plots to show what the NENTITY and L-BRACKET drawings should look like upon completing the generation scripts.

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### **Test Reference Packets**

4. Procedures to follow to conduct a post-processor test; post-processing is the translation from an IGES file to a CAD system.
5. The IGES files on a 9-track tape in MIL-STD-1840A format of both the NENTITY and L-BRACKET reference drawings to post-process into the CAD system.
6. Evaluation scripts (sets of questions) to complete after the NENTITY and L-BRACKET drawings have appeared on the CAD screen after post-processing.
7. A paper printout of the IGES files for both the NENTITY and L-BRACKET drawings with every entity identified by number, form, and description; these may be useful in pinpointing processing errors.
8. Entity listing and counts for both the NENTITY and L-BRACKET drawings.
9. Hardware and software descriptions of the CTN IGES Test Platform.

### **Content and Creation of the Reference Material**

#### **The NENTITY Drawing**

The NENTITY drawing is comprised of all the geometric and annotation IGES entities (entity numbers 100 through 230) identified in the MIL-D-28000 Class II subset. The drawing is organized such that the entities reside individually by entity and form number within one box of a grid. This grid box is labeled to show which entity it should contain. All entities are model mode entities and some are three-dimensional. The drawing is C-sized.

#### **The L-BRACKET Drawing**

The L-BRACKET drawing incorporates all of the structure entities (IGES entity numbers 304-410) specified in the MIL-D-28000 Class II subset. The L-BRACKET is stored as a three-dimensional model and is represented on a C-sized drawings with four views. Draw mode entities detail and dimension the L-BRACKET's view. The drawing is meant to resemble a workable engineering drawing.

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### **Development of the IGES Files**

The NENTITY and L-BRACKET drawings were drafted on a CAD system, then pre-processed into IGES files. Because the pre-processed IGES files did not completely conform to IGES Version 4.0, and MIL-D-28000 did not include all desired Class II entities, the files were hand edited. During this hand editing, the criteria discussed in the "Guide to Developing IGES Test Cases" written by the IGES Test Case Subcommittee of the National IGES/PDES Organization was adhered to wherever possible. This hand editing produced IGES files that incorporate all MIL-D-28000 Class II entities and pass several IGES analyzers with no accountable errors. The two analyzers referred to are the IGES Model Testing System and IGES Data Analysis Company Parser/Verify and View software package.

The completed IGES files were then copied to a 9-track tape in accordance with MIL-STD-1840A. MIL-STD-1840A declaration files accompany the IGES files on the 9-track tape.

### **The Scripts**

The reference drawing packet contains two different kinds of scripts. The generation scripts describe how to create the reference drawings on a CAD system during the pre-processor test and are designed to be generic enough to allow drawing generation on any CAD system. The evaluation scripts describe how to evaluate the CAD model that appears during a post-processor test, and they ask questions that try to address DoD's present requirements for an engineering drawing digital transfer.

### **The Procedures**

The CTN's procedures for testing both the pre- and post- processors follow the testing procedures proposed by the National IGES/PDES Testing Subcommittee. Other procedures were derived from available hardware and software resources and past experience.

### **Conclusion**

By following the procedures described in this CTN MIL-D-28000 Class II Reference Drawing Packet and by referring to the scripts, plots and data lists also contained within, one can examine engineering data digital transfers using IGES and MIL-D-28000.

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Test Reference Packets**

**The CALS Test Network MIL-M-28001  
SGML Test Packet Summary**

The CTN Technical Publications Reference Test Packet is in draft form and includes the six items listed below. Please contact the CTN Air Force Test Bed for availability.

The following MIL-STD-1840A Test File Sets will be provided to CTN Participants:

1. Individual files sets without illustrations that highlight the following MIL-M-28001 SGML Elements:

- a. Front matter.
- b. Rear matter.
- c. Standard Tables, User Defined Tables, and charts.
- d. Warnings, Cautions and Notes.
- e. Special Characters and Emphasis.
- f. Lists.
- g. Sub-paragraphs.
- h. Steps.
- i. Other (i.e., Footnote, Emergency Information, Difference Data, Cross Reference, Boiler Plate, Changes, Subscript, Superscript, etc.)

- 2. File set containing minimized MIL-M-28001 SGML tagging and MIL-D-28000 IGES Class I Illustrations.
- 3. File set containing minimized MIL-M-28001 SGML tagging and MIL-R-28002 Raster Type I Illustrations.
- 4. File set containing minimized MIL-M-28001 SGML tagging and MIL-D-28003 CGM Illustrations.
- 5. File set containing a complete, delivered Technical Publication containing MIL-R-28002 Raster Illustrations.
- 6. File set for style and Output Specification (pursuant to the release of an Output Specification and a Formatting Output Specification Instance)

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**CALS Test Network MIL-R-28002  
Raster Type I Test Packet Summary**

The CTN MIL-R-28002 Raster Type I Test Packet is complete and available. CTN raster testing is intended to provide both acquisition managers and vendors with a strategy and tools to evaluate system functionalities as supporting the CALS standards. Additionally, these tools will aid in the assessment of system imaging characteristics over a range of functional requirements that may be specified for various DoD acquisitions and implementations.

This capability will be provided in the form of a set of sample image, data, recommended test utilities and test procedures identified as the CTN Raster Test Packet.

Sample images both in the MIL-STD-1840A format and hard copy are available through the CTN. Other test target images are commercially available.

Computer codes such as raster display utilities and group-4 compression/decompression routines, may be identified as commercially available, in the public domain or available through the CTN.

Test procedures are contained in documentation accompanying the CTN Raster Test Packet. The CTN should be viewed as a resource, available to acquisition managers and vendors throughout the acquisition cycle.

The CTN MIL-R-28002B Raster Type II Test Packet is under development and will be available to CTN members in the near future.

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Test Reference Packets**

**The CALS Test Network MIL-D-28003  
CGM Test Packet Summary**

The CALS Test Network CGM Test Packet consists of several computer graphics metafiles together with procedures for conducting a CGM interpreter test and for evaluating the resultant images.

Four Computer Graphics Metafiles are included. All represent the same image, a presentation of the eighteen graphical primitive elements that are permitted by MIL-D-28003, each in a separate labeled portion of the image. Two of the files are legal CGMs under MIL-D-28003, one a binary format CGM with integer VDC, the other a binary format CGM with real VDC. The other two files are fully documented human readable, clear text versions of the integer and real versions of the metafiles.

The test packet includes the reference CGMs on floppy disk and written procedures for conducting the test and for evaluating the results of the test. A sample image is included for comparison.



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*CALS TEST NETWORK*

# **Air Force CALS Test Bed Bulletin Board Systems**

### **CTN Handbook March 1993 AFCTB Bulletin Board Systems**

The Air Force CALS Test Bed (AFCTB) maintains a PC based bulletin board system and an INTERNET Unix system for FTP file transfers. The mode of access is the only difference between the two systems. The current versions of all of the CTN Tools are available on both systems for download or reference.

**WARRANTY DISCLAIMER:** All CTN tools are made available as is. Every effort will be made to correct bugs as they are found. No warranty is given with any of these tools.

**NOTE:** The Internet Unix files are case sensitive. You must enter the file names as shown in the section titled "Sub-Directories", below. The PC Bulletin Board can be entered in either upper or lower case.

A listing and description of each of the CTN Tools available on the Bulletin Board systems is provided in the section titled "CALS Tools and Products", below. The tools are located in the subdirectories as shown in the section title "Sub-Directories", below. We have also included a file called README which contains a list of tests reported with date, company, and type of test.

Phone numbers and set-ups for the two AFCTB BBS's are shown below:

#### **PC BASED BULLETIN BOARD**

Phone Number - Commercial: (513) 476-1273

These files are in a ZIPed compressed format. You will need PKUNZIP to decompress these files. Note: There will be a README file installed for help in using these files.

#### **INTERNET UNIX FILE TRANSFER SYSTEM**

The INTERNET Unix system may be reached via an FTP query. The ftp address for the system is 137.245.100.18. The logon is "anonymous" with "guest" as the password. The files will be compressed using the UNIX compress utility and will be denoted with the "Z" extension. You may download any files but you may only leave files in the "pub" sub-directory shown in the section titled "Sub-Directories", below.

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AFCTB Bulletin Board Systems**

**SUB-DIRECTORIES**

**ctntools**

tapetool (v1.3)  
source\_code  
sun3  
msdos  
vax (v1.2.8)  
ada (v1.2.8)

**raster**

validg4 (group IV validator)  
sun3  
sun 4 (SPARC)  
msdos  
source\_code  
calstb (raster viewer)  
source\_code  
calstb.350 (sun3)  
calstb.475 (sun4)

**cgm**

validcgm  
validcgm (SPARC only)

**iges (28000A)**

Class I Test set (2 files)  
Class II Test set (2 files)

**sgml (28001A)**

All Current DTDs  
Stripper tool

**pub**

File space for uploading test packets to the Test Bed

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AFCTB Bulletin Board Systems**

**CALS TOOLS AND PRODUCTS**

The following tools and products are available from the AFCTB:

**TOOLS**

**1840 TAPE**

Tapetool Ver 1.3

The purpose of this tool is to allow the user to write and read an 1840 tape. This tool is available in SUN3, MSDOS, VAX (v1.2.8), and ADA (v1.2.8) formats. Source code is also available.

**RASTER**

validg4

This tool verifies Group 4 Compressions and is available in SUN3, SUN4 (SPARC), MSDOS formats. Source code is also available.

calstb

This tool provides the ability to view raster. It is available only for the SUN3 and SUN4 as calstb.350 and calstb.475 respectively. Source code is also available.

**CGM**

validcgm

This tool parses and validates the CGM files. It is only available in a SPARC format.

**SGML**

Stripper Tool  
ver 1.0

This tool is a generic software tool used to strip SGML tags from an instance (SGML tagged document). Its intended use is to make a document more readable without the SGML tags. After an instance is processed, it may be viewed on the screen or printed.

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**AFCTB Bulletin Board Systems**

**PRODUCTS**

**IGES**  
MIL-D-28000A  
Class I & Class II  
Test Packets

Sample test data and instructions. This data can be used on any IGES CAD system.

**SGML**  
MIL-M-28001A  
Tech Pubs Test Packets

This test packet contains individual file packets without illustrations that highlight MIL-M-28001 SGML elements.

**RASTER**  
MIL-R-28002A  
Test Packet

There are two packets available, identified as Type I and Type II. This is a packet of sample image, data, recommended test utilities and test procedures.

**CGM**  
MIL-D-28003A  
Test Packet

This packet contains "typical" technical illustrations in MIL-D-28003 format. Also contains two illustrations utilizing all graphical primitive elements permitted.

**TEST REPORTS**

All tests conducted by the DoD CALS Test Network (CTN) are available upon request through the AFCTB

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*CALS TEST NETWORK*

# **CALS Standardization Effort**



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CALS Standardization Effort**

**MIL-STD-1840  
AUTOMATED INTERCHANGE OF TECHNICAL INFORMATION**

**CURRENT VERSION: Revision B (January 1993)**

**PURPOSE:** This standard addresses technical information which is part of the traditional technical data package used in item/system acquisition; technical information used in design, manufacture, fielding and disposal of an item/system; and that technical documentation used in item/system support. MIL-STD-1840 standardizes the formats for automated transfer and exchange of digital information between organizations or systems exchanging technical information in digital form throughout the life cycle of an item/system. It identifies the Standards, Specifications, and technologies, under the CALS concept, for the automated exchange of technical information.

**CHANGES:**

- Revise and smooth criteria for information exchange
  - Reduce media dependent instructions
  - Review, revise and simplify declaration and data file header information
- Review packaging requirements
- Improve tailoring instructions
- Address backward compatibility issues
- Address emerging information exchange technologies and standards for automated information exchange

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CALs Standardization Effort**

**MIL-D-28000  
DIGITAL REPRESENTATION FOR COMMUNICATION OF  
PRODUCT DATA:  
IGES APPLICATION SUBSETS AND IGES APPLICATION  
PROTOCOLS**

**CURRENT VERSION:** Revision A, Amendment 1 (January 1993)

**PURPOSE:** Identifies the requirements to be met when product definition data is delivered in digital format of the Initial Graphics Exchange Specification (IGES) as specified by ASME Y14.26M standard.

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**MIL-M-28001  
MARKUP REQUIREMENTS AND GENERIC STYLE  
SPECIFICATION**

**CURRENT VERSION:** Revision A (July 1990)

**NEXT REVISION:** Revision B (July 1993)

**PURPOSE:** Defines digital data form for the structure layout and text of technical publications. Applies the international SGML standard, ISO 8879, a meta language for describing the logical content and structure of a document in a machine processable syntax. Deals with DTDs, FOSIs, PDLs and Raster/Vector illustrations.

**STATUS:** Incorporating final changes with estimated publish date of 16 July 1993.

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CALS Standardization Effort**

**MIL-R-28002**

**RASTER GRAPHICS REPRESENTATION IN BINARY FORMAT**

**CURRENT VERSION:** Revision B (January 1993)

**PURPOSE:** Identifies the requirements to be met when raster graphics data are represented in digital, binary format delivered to the Government.

**PLANNED CHANGES:** Amendment 1 is being planned to align it with international usage of Header fields.

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**MIL-D-28003**

**DIGITAL REPRESENTATION FOR COMMUNICATION OF  
ILLUSTRATION DATA: CGM APPLICATION PROFILE**

**CURRENT VERSION:** A (May 1992), Amend 1 (August 1992)

**NEXT REVISION:** N/A

**PURPOSE:** Defines an application profile for delivery of two-dimensional picture description or illustration data that is vector or mixed vector and raster and is delivered in the digital format of the Computer Graphics Metafile (CGM) as specified by the Federal Information Processing Standard, FIPS PUB 128.

**STATUS:** Amendment 1 has been distributed.

**PLANNED CHANGES:** An Amendment 2 is being planned and will be discussed at the 30 March 1993 Drawing and Graphics Committee meeting. Possible changes include the Metafile Descriptions, Clarifying Restricted Text, Order of Precedence and Rules for Profiles.

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**MIL-M-87268  
MANUALS, INTERACTIVE ELECTRONIC TECHNICAL:  
GENERAL CONTENT, STYLE, FORMAT, AND USER-  
INTERACTION REQUIREMENTS**

**CURRENT VERSION: January 1993**

**PURPOSE:** This specification contains common requirements for the general content, style, format, and user-interaction features which are required for Interactive Electronic Technical Manuals (IETM). These IETMs are to be in digital form and are designed for interactive display to the maintenance-technical or system-operator end-user by means of a computer-controlled Electronic Display System (EDS). This specification provides requirements governing the creation of IETMs and the development of IETM presentation software.

CTN - Air Force Test Bed will perform testing.

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**MIL-D-87269  
DATA BASE, REVISABLE: INTERACTIVE ELECTRONIC  
TECHNICAL MANUALS, FOR THE SUPPORT OF**

**CURRENT VERSION: January 1993**

**PURPOSE:** This specification prescribes the requirements for an Interactive Electronic Technical Manual Data Base (IETMDB) to be constructed by a weapon-system Contractor for the purpose of creating Interactive Electronic Technical Manuals (IETM). The requirements cover the Specification for the IETMDB and are intended to apply to one or both of two modes as specified in a contract: (1) the interchange format for the Data Base to be delivered to the Government; or (2) the structure and the naming of the elements of the Data Base created and maintained by the Contractor for purposes of creating IETMs which are in turn delivered to the Government.

CTN - Air Force Test Bed will perform testing.

**CTN Handbook March 1993  
CALS Standardization Effort**

**MIL-Q-87270  
QUALITY ASSURANCE PROGRAM:  
INTERACTIVE ELECTRONIC TECHNICAL MANUALS  
AND ASSOCIATED TECHNICAL INFORMATION;  
REQUIREMENTS FOR**

**CURRENT VERSION:** January 1993

**PURPOSE:** Prescribes the requirements for a Contractor's Quality Assurance (QA) program for Interactive Electronic Technical Manuals (IETMs) and, where procured, the associated IETM Data Base. The requirements cover the QA process from planning through final submission of the delivered product for acceptance; and apply as well to changes and revisions thereto.

CTN - Air Force Test Bed will perform testing.

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**MIL-HDBK-59  
COMPUTER-AIDED ACQUISITION AND LOGISTIC SUPPORT  
(CALS) PROGRAM  
IMPLEMENTATION GUIDE**

**CURRENT VERSION:** Revision A (September 1990)

**NEXT REVISION:** Revision B (November 1993)

**PURPOSE:** Assist acquisition managers in transitioning from paper-intensive processes to digital data delivery and access. This handbook provides guidelines for applying a disciplined data management approach for all defense system and equipment acquisition programs, major modification programs, and related research and development projects throughout their life cycle phases in accordance with DoD Instruction (DoDI) 5000.2.

**STATUS:** Under limited review prior to CDSO receipt. For coordination review estimated 28 April 1993. Estimated publish 30 November 1993.

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CALs Standardization Effort**

**MIL-STD-CITIS  
CONTRACTOR INTEGRATED TECHNICAL INFORMATION  
SERVICE (CITIS), FUNCTIONAL REQUIREMENTS FOR**

**CURRENT VERSION:** None

**PURPOSE:** Defines services that a contractor provides the Government with authorized access to contractor data bases and applications (both business and technical). CITIS encompasses all activities and functions that are necessary for the Government to achieve practical use of digital data.

**STATUS:** Comment reconciliation meeting 23-26 March 1993. Estimated publish date late 1993.

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**MIL-HDBK-SGML**

**CURRENT VERSION:** Draft

**PURPOSE:** To provide SGML guidance to the community.

**STATUS:** Pre-draft October 1993

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**THE ADMINISTRATIVE AGENT FOR THE ABOVE STANDARDS  
AND SPECIFICATIONS IS:**

Attn: CDSO  
HQ AFMC/ENCS  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
513/257-3085 DSN 787-3085

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CALS Standards and Specifications and other CALS documents may be obtained from:

**U.S. Department of Commerce  
National Technical Information Service (NTIS)  
Springfield VA 22161  
703/487-4650  
FAX: 703/321-8547**

The NTIS Bulletin Board has a CALS Subboard. Dial into the NTIS Bulletin Board using:

**703/321-8020 for 300/1200/2400 baud  
or  
703/321-8970 for 9600 baud.**

Log on to the NTIS Bulletin Board, process through welcome and advisory material and sign on, or register on the board if not already a known user, then process through welcome and announcements to the Main Menu. Select Open CALS from the Main Menu, process through the CALS welcome and informational material to the CALS BBS main menu.



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# Test Reports



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### CTN Test Reports

- 91-001 Tech. Pub. Transfer Test with U.S. Army Info Sys
- 91-002 Tech. Pubs. Transfer Test with Texas Instruments
- 91-004 SEAWOLF Digital Data Transfer Program: IGES
- 91-006 Tech. Pub. Raster Transfer Test with UNISYS
- 91-007 Tech. Pub. Transfer Test with Litton Data Systems
- 91-008 Raster Image Transfer Test with CIMAGE Corp
- 91-013 Tech. Pub. SGML Transfer Test Using Zander's Tagwrite
- 91-015 Tech. Pub. Raster Transfer Test Using Formtek's Convert.  
View for Sun Workstation
- 91-019 Eng. Data Transfer into DSREDS MICOM Using Raster.  
Laboratory Acceptance Test
- 91-020 Raster-I Engr Drwg Test Using Data Dev. Inc.
- 91-021 Digital Data Acceptance/Quality Assurance Procedures
- 91-022 CTN Tool Test
- 91-023 Field Testing of Phase I DA Procedures
- 91-024 U.S. Army CALS Test Bed MIL-STD-1840A Data Delivery Using Non-Magnetic  
Tape Media
- 91-025 Demo Report Computer-Assisted Techniques for Digital Data Acceptance
- 91-026 Model--Engineering Data
- 91-027 Computer Assisted Data Acceptance Procedures
- 91-028 Model--Technical Manual Data
- 91-040 A Path to Tri-Service Use of SGML
- 91-045 How to Validate Document Type Definitions (DTDs)
- 91-046 MIL-D-28003 CGM Test Packet
- 92-001 EDCARS Raster Engineering Data Test
- 92-003 Tech. Pub. Transfer Test Using Lockheed Missiles and Space Data
- 92-004 Tech. Pub. Transfer Using Lockheed, General Electric and Rockwell Data
- 92-005 Tech. Pub. Transfer Test Using Hughes Aircraft
- 92-006 Tech. Pub. Test Using Bow Industries Tape to Optical Disk to Tape Transfer System
- 92-007 CALS/EDI Sacramento ALC Transfer Test
- 92-008 EDMICS Raster Engineering Data Test
- 92-009 Computer-Assisted Data Acceptance Vendor Selection Report
- 92-010 Computer-Assisted Data Acceptance Phase III Test
- 92-011 CTN Summary of DSREDS, EDCARS, EDMICS CALS Readiness Testing
- 92-012 Technical Analysis Report Tools for Test Bed Procedure Automation
- 92-013 Engineering Drawing Transfer Using Sunstrand Aerospace
- 92-014 Technical Publication Transfer Test Using Hughes Tucson Support System
- 92-015 Technical Publication Transfer Test Using VSE Corp

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**CTN Test Reports**

- 92-016 Raster Transfer Test Using Image Memory Systems Inc
- 92-017 Technical Publications Transfer Test Using Resource Data Consultants
- 92-018 Engineering Drawing Transfer Test Using Magnavox
- 92-019 I-DEAS Drafting Level VI Using Structural Dynamics Research Corp IGES
- 92-020 Technical Publications Transfer Test Using Litton Canada
- 93-001 Draft Report on Evaluation of IGES, PDES/STEP and JCALS Relationships
- 93-002 Computer-Assisted Data Acceptance (CADA) Performance Test Report
- 93-003 Report on Prototype Design IETM
- 93-004 Recommendations for PDES/STEP Modifications and Enhancements Report
- 93-005 Computer-Assisted Data Acceptance (CADA) Contractor Test Report
- 93-006 Report on Document Instance Development
- 93-007 Transfer Test Using Raster Type II NIST Data
- 93-008 Tech Pub Transfer Using Xerox SGML Raster
- 93-009 Tec Illust Transfer Using Texas Instrument IGES, Raster, CGM
- 93-010 Tech Pub Transfer Using Arbortext
- 93-011 Tape Transfer Test Using Sikorsky Aircraft
- 93-012 CGM Transfer Using Texas Instruments Data
- 93-013 CGM Transfer Using Texas Instruments Data
- 93-015 Technical Publication Transfer Using Xerox Corporation Data
- 93-016 Evaluation of Computer-Aided systems for MIL-D-28000 Compliance with Additional User Requirements
- 93-017 Test Case Development and Verification Guide for MIL-D-28000
- 93-018 MIL-D-28000 Test Case Index and Abstracts

To receive copies of any CTN reports or documents, please contact

Pamela Brown  
AFMC/ENCS  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
Phone: (513) 427-2295  
Fax: (513) 257-5881

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**CTN Test Reports**

**TEST DATA AND TOOLS**

X Media (F=Floppy; T=9-Track Tape)

For Floppy: \_ 3.5" LD/HD \_ 5.25" LD/HD

**F I**

- - CTN Group 4 Compression/Decompression Software
- - CTN MIL-D-28000 Class I Reference Illustrations (2)
- - CTN MIL-D-28000 Class II Reference Eng. Drwg (2)
- - CTN MIL-M-28001 Ref. Tech. Pub. Set (10) Preliminary
- - CTN MIL-M-28001 w/CGM Reference Tech. Pubs. (2)
- - CTN MIL-M-28001 w/IGES Reference Tech. Pub.
- - CTN MIL-M-28001 w/Raster Ref Tech. Pub. (Expo '89)
- - CTN MIL-R-28002 Type I Reference Data (18)
- - CTN MIL-D-28003 Reference Illustrations (2)
- - CTN Raster Tool Box (CTNTB.350)
- - CTN TAPETOOL (VAX/VMS, SUN/UNIX, PC/DOS)
- - CTN Tech. Pubs. Ref. Docs-11 Files (Preliminary)
- - CTN Tools Tape

To receive copies of test data and/or tools, please contact

Cathy Murphy  
AFMC/ENCS  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
Phone: (513) 257-3085  
Fax: (513) 257-5881



*CALS TEST NETWORK*

# Acronyms

## CTN Handbook March 1993

### Acronyms

AF	Air Force
AFB	Air Force Base
AFMC	Air Force Materiel Command
AFTB	Air Force Test Bed
AITI	Automated Interchange of Technical Information
ALC	Air Logistics Center
ANSI	American National Standards Institute
AP	Application Profile
ASCII	American Standard Code for Information Interchange
BBS	Bulletin Board System
BPI	Bits per inch
CAD	Computer-Aided Design
CALS	Computer-aided Acquisition and Logistic Support
CCITT	International Consultative Committee on Telegraphy and Telephony
CGM	Computer Graphics Metafile
CITIS	Contractor Integrated Technical Information Service
CDSO	CALS Digital Standards Office
CTN	CALS Test Network
CTN BBS	CALS Test Network Bulletin Board System
CTNO	CALS Test Network Office
CTNRB	CALS Test Network Review Board
DA	Data Acceptance
DSN	Defense System Network
DLA	Defense Logistics Agency
DoD	Department of Defense
DOE	Department of Energy
DSREDS	Digital Storage and Retrieval Engineering Data System
DTD	Document Type Definition
EDCARS	Engineering Data Computer-Assisted Retrieval System
EDI	Electronic Data Interchange
EDMICS	Engineering Data Management Information and Control System
FOSI	Format Output Specification Instance
FTP	File Transfer Protocol
GKS	Graphical Kernel System

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**Acronyms (Cont'd)**

HQ	Headquarters
IETM	Interactive Electronic Technical Manual
IGES	Initial Graphics Exchange Specification
ISO	International Organization for Standardization
LLNL	Lawrence Livermore National Laboratory
MIL-STD	Military Standard
MOA	Memorandum of Agreement
MS-DOS	Microsoft Disk Operating System
N/A	Not Available
NAVSEA	Naval Sea Systems Command
NIST	National Institute of Standards and Technology (formerly National Bureau of Standards)
NTIS	National Technical Information Service
OASD	Office of the Assistant Secretary of Defense
OS	Output Specification
OSD	Office of the Secretary of Defense
P&L	Production and Logistics Systems CALS
PDES	Product Data Exchange Specification
SGML	Standard Generalized Markup Language
TCP/IP	Transmission Control Protocol Internet Protocol
WPAFB	Wright-Patterson Air Force Base

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*CALS TEST NETWORK*

# Membership Application



**CTN Handbook March 1993**  
**Membership Application & Memorandum of Agreement**

Please provide the following information and mail the

*Completed Application and the Signed Memorandum of Agreement*  
to

Major Ed Preston, Director  
CALs Test Network  
HQ AFMC/ENC  
4027 Col Glenn Hwy Suite 200  
Dayton OH 45431-1601  
(513) 257-3085 FAX: (513) 257-5881

When your application is received, you will be sent a letter of acceptance that will provide you with further details.

Company Name: \_\_\_\_\_

Point of Contact, Title: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Phone: \_\_\_\_\_

FAX: \_\_\_\_\_

Following is a listing of technical information file types that will be accepted by the CTN to test MIL-STD-1840A or MIL-STD-1840B and their associated military specifications. Test files may be on 9-track tape or on other media as may be agreed upon and in the format as specified in MIL-STD-1840A.

Do you anticipate providing test files to the CTN before the end of CY93? Yes \_\_\_ No \_\_\_

If you check "yes", please indicate the test files that you are interested in providing to the CTN and the approximate time period in which you expect to provide them. Please schedule with CTN before submitting any test files.

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**Membership Application & Memorandum of Agreement**

	CY 93 month	CY 94 month
<b>TECHNICAL MANUALS</b>		
(Tech Manual Test Files should contain complete tech manuals)	_____	_____
<b>Text Only:</b>		
SGML		
[tagged in accordance with (iaaw) MIL-M-28001]	_____	_____
<b>Text with Illustrations:</b>		
IGES (iaaw MIL-D-28000 Class I)	_____	_____
Raster (iaaw MIL-R-28002 Type I)	_____	_____
CGM (iaaw MIL-D-28003)	_____	_____
<b>ENGINEERING DRAWINGS</b>		
IGES (iaaw MIL-D-28000 Class II)		
Drawing Size (Circle)      A B C D E	_____	_____
Raster (iaaw MIL-R-28002 Type I)		
Drawing Size (Circle)      A B C D E	_____	_____
Raster (iaaw MIL-R-28002 Type II)		
Drawing Size (Circle)      A B C D E	_____	_____

In addition to test files, you will be asked to submit a listing of the equipment and software, including version numbers, used to produce the test files.

Please describe any plans for internal testing of the CALS standards that may not involve CTN:

\_\_\_\_\_  
 Please add any additional comments or questions:

**CTN Handbook March 1993**  
**Membership Application & Memorandum of Agreement**

**MEMORANDUM OF AGREEMENT**  
**between**  
**CALS TEST NETWORK OFFICE**  
**and**  
**CTN MEMBERS**

Regarding:

**PARTICIPATION IN THE TESTING PROGRAM**  
**OF THE CALS TEST NETWORK (CTN)**

**BACKGROUND**

Headquarters Air Force Materiel Command, Air Force CALS Program Office (AFMC/ENC), acting for the CALS Policy Office, will test and recommend revision to the MIL-STD-1840A with Change Notice 1, dated 20 December 1988, and MIL-STD-1840B, and their referenced military specifications. This testing will be directed by the CTN Office (CTNO) within ENC and conducted by the CTN Test Beds and volunteer companies. The CTN Test Beds include the CTNO/LLNL, Army, Navy, and Air Force acting under the authority and direction of the CTNO, shall be part of this agreement.

**PURPOSE**

This agreement defines the approach by which the members of the CTN will participate in this test program and the tests which each participant will conduct.

**RESPONSIBILITIES**

The CTNO will be responsible for the preparation and execution of the appropriate documents. In conjunction with CTNO and the Lead Service Test Beds, the CTNO will negotiate with each individual test participant by the test contractors in the testing and attendance at pre- and post-test planning meetings. It will also include the participant's and the CTNO evaluation of test results to be published by the CTN and placed in the public domain.

**ATTACHMENTS**

Attached to this MEMORANDUM will be plans for the specific tests which have been negotiated as described in the responsibilities paragraph above.

## RESTRICTIONS

### SIGNATURES AND EFFECTIVE DATE

CTN Director  
Air Force Materiel Command

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